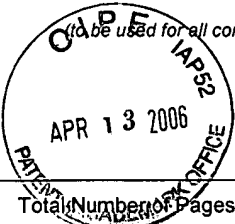
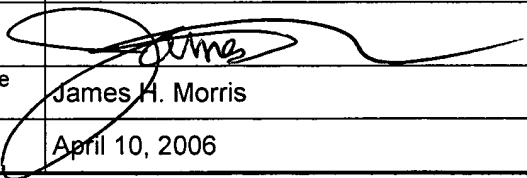


<h1 style="text-align: center;">TRANSMITTAL FORM</h1> <div style="text-align: center;">  </div>	Application Number	09/736790
	Filing Date	December 14, 2000
	Patent Number	7023908
	Issue Date	April 4, 2006
	First Named Inventor	Tomas Nordstrom et al.
	Art Unit	2638
	Examiner Name	Emmanuel Bayard
Total Number of Pages in This Submission	Attorney Docket Number	S1022.80495US00

**ENCLOSURES (Check all that apply)**

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Request for Certificate of Correction <input checked="" type="checkbox"/> Certificate of Correction PTO SB-21 <input checked="" type="checkbox"/> Page 9 of Application as Filed <input checked="" type="checkbox"/> Page 7 of 8/24/05 Amendment <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please Identify below): Return Receipt Postcard
Remarks		<div style="text-align: center;"> <b>Certificate</b>  <b>APR 17 2006</b>  <b>of Correction</b> </div>

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

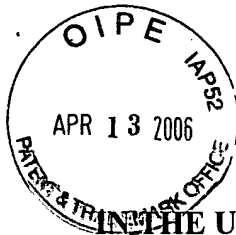
Firm Name	WOLF, GREENFIELD & SACKS, P.C.		
Signature			
Printed name	James H. Morris		
Date	April 10, 2006	Reg. No.	34,681

**Certificate of Mailing Under 37 CFR 1.8(a)**

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: April 10, 2006

Signature:  (Gail Driscoll)
**APR 17 2006**  
 1011215.1



Docket No.: S1022.80495US00  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Tomas Nordstrom, Daniel Bengtsson and Olivier Isson  
Serial No.: 09/736790 Patent No. 7023908  
Filed: December 14, 2000 Issued: April 4, 2006  
Patent No.: 7023908  
For: DSL TRANSMISSION SYSTEM WITH FAR-END CROSSTALK  
COMPENSATION

Examiner: Emmanuel Bayard  
Art Unit: 2638

Confirmation No. 6611

**Certificate of Mailing Under 37 CFR 1.8(a)**

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Dated: April 10, 2006

*Gail Driscoll*  
Gail Driscoll

**REQUEST FOR CERTIFICATE OF CORRECTION  
PURSUANT TO 37 CFR 1.322**

Attention: Certificate of Correction Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentee noted typographical errors which should be corrected.

In the Specification:

At column 6, line 54 the line should read --LT-FEXT canceller has a simplified structure. In such an-- as it appears on page 9, line 14 of the application as filed.

In the Claims:

In claim 18, column 10, line 54 should read --far end crosstalk canceling circuit supplying a storage-- as it appears in claim 16 as allowed.

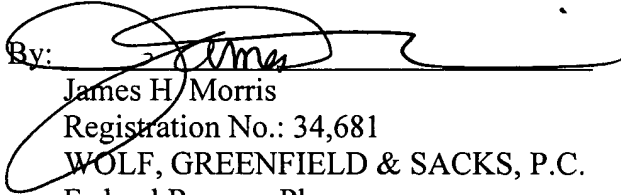
APR 17 2006

The errors were not in the application as filed by applicant nor were they made in any amendments; accordingly no fee is required.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

Dated: April 10, 2006

Respectfully submitted,

By:   
James H Morris  
Registration No.: 34,681  
WOLF, GREENFIELD & SACKS, P.C.  
Federal Reserve Plaza  
600 Atlantic Avenue  
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APR 17 2006

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

Page 1 of 1

PATENT NO. : 7023908  
APPLICATION NO. : 09/736790  
ISSUE DATE : April 4, 2006  
INVENTOR(S) : Tomas Nordstrom, Daniel Bengtsson and Olivier Isson

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 6

line 54, should read --LT-FEXT canceller has a simplified structure. In such an--

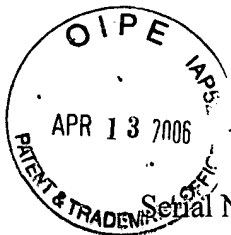
Column 10

line 54, should read --far end crosstalk canceling circuit supplying a storage--

MAILING ADDRESS OF SENDER (Please do not use customer number below):

James H. Morris  
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**APR 17 2006**



Serial No.: 09/736,790

-7-

Art Unit: 2638

precompensation circuit with the inverted matrices  $H^{-1}(f_j)$ , the precompensation circuit sequentially calculating the products  $H^{-1}(f_j) * S(f_j)$ .

16. (Currently Amended) A far-end crosstalk canceling circuit for a data transmission system comprising a precompensation circuit multiplying, before transmission, a vector  $S = (S_i)$ ,  $i = 1$  to  $n$ , by a precompensation matrix such that the matrix product  $H * M$  is diagonal,  $H$  being a transfer matrix of a plurality of transmission channels defined by  $R = H * S$ , where  $R = (R_i)$ ,  $i = 1$  to  $n$ , is the vector of the digital transmission symbols  $R_i$  respectively received by a modem; and

a data transmission system comprising a plurality of line termination modems transmitting discrete multitone symbols  $S_i$  to corresponding network termination modems over  $n$  transmission channels, comprising:

a far-end crosstalk canceling circuit, canceling far-end crosstalk at the network termination side of said system; and

a line termination far-end crosstalk canceling circuit canceling far-end crosstalk at the line termination side of said system by estimating an inverse of the transfer matrix  $H^{-1}_{up}$  of the plurality of the transmission channels in an upstream direction, said line termination far-end crosstalk canceling circuit supplying a storage circuit of said far-end crosstalk canceling circuit with  $H = H^{-1}_{up}$ .

17. (Previously Presented) A data transmission system comprising a plurality of line termination modems transmitting discrete multitone symbols  $S_i$  to corresponding network termination modems over  $n$  transmission channels, comprising:

a far-end crosstalk canceling circuit according to claim 15 canceling far-end crosstalk at the network termination side of said system; and

a line termination far-end crosstalk canceling circuit canceling far-end crosstalk at the line termination side of said system by estimating the inverse of the transfer matrices  $H^{-1}_{up}(f_j)$  of the plurality of transmission channels in the upstream direction at tone  $f_j$ , said line termination far-end crosstalk canceling circuit supplying the storage circuit of said far-end crosstalk canceling circuit with  $H(f_j) = H^{-1}_{up}(f_j)$ .

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means 530, a modulo N counter 522 and has no equalizer. It is assumed that the NT side is provided with a sequence controller synchronized with the controller 34' and having the same sequence pattern.

5 The updating means 530 receives a value  $j_0$  from the modulo N counter 522 clocked by  $CK_t$  and the signal  $C_{kin}$  delayed by delay 531. In updating/transmitting mode, the updating means 530 extracts on a rising edge of  $C_{kin}$  the component at frequency  $j_0$  of the received DMT symbol output by the FFT block 514. The updating means 530 compares the coefficient  $H_{ioi}(f_{j0})$  with the last coefficient  $H_{ioi}(f_{j0})$  previously obtained. If the absolute value of the difference is greater than a given threshold  $Th_{j0}$ , which in general is a function  
10 of frequency  $f_{j0}$ , the new coefficient is appended to a header and transmitted via multiplexer 520 to the LT modem  $M_i$ .

Turning back to figure 3B, similarly to the first embodiment, the columns of the matrices  $H(f_j)$  can also be directly provided by an external LT-FEXT canceller as shown in figure 6. With the assumption of intra-frequency FEXT the LT-FEXT canceller has a  
15 simplified structure. In such an instance, as disclosed in the above cited copending application, the LT-FEXT canceller estimates the matrices  $H_u^{-1}(f_j)$  for  $j = 1$  to  $N$ . These matrices can be used as the precompensating matrices  $H(f_j)$ .

Having thus described at least one illustrative embodiment of the invention, various alterations, modifications, and improvements will readily occur to those skilled in the art.  
20 Such alterations, modifications, and improvements are intended to be within the spirit and scope of the invention. Accordingly, the foregoing description is by way of example only and is not intended as limiting. The invention is limited only as defined in the following claims and the equivalents thereto.

What is claimed is:

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